

REMARKS

Claims 1, 63 and 68 have been amended. No new matter has been added or new issues raised. Claims 37-38 have been cancelled without prejudice. Applicants reserve the right to pursue the subject matter of those cancelled claims in a continuing application. New claim 78 has been added. No new matter has been added. Support for new claim 78 may be found throughout the specification and in the claims as originally filed.

Claims 1, 3-10, 15-36, 39-51, 63 and 68-78 are pending.

INTERVIEW SUMMARY

Applicants thank the Examiner for the telephonic interview conducted on October 27, 2009 during which the pending claims were discussed. The Examiner agreed that the combination of nisin/phenolic diterpene resulted in synergistic effect against *Listeria* and *Bacillus* as demonstrated for example, in Table 5, line 5 of p. 42 of the specification. The Examiner invited Applicants to amend claim 1 to remove reference to carvacrol and carvone in order to clarify that it is the combination of nisin and phenolic diterpene that demonstrates a synergistic effect on the viability of *Listeria* and *Bacillus*. Accordingly, claim 1 has been amended as suggested by the Examiner.

CLAIM REJECTIONS

Rejection under 35 U.S.C. § 103

Bicchi, Yang, Pol and Karatzas

The Examiner has rejected claims 1, 3-10, 15-36, 39-40, 50-51, 63 and 69-77 under 35 U.S.C. § 103(a) as being unpatentable over Bicchi et al. (*Phytochemical Analysis*, 11, 236-242 (2000)) ("Bicchi"), Yang et al., (*Bioorganic & Medicinal Chemistry*, 9, 347-36 (2001)) ("Yang"), Pol et al., (*Letters in Applied Microbiology*, 29, 166-170 (1999)) ("Pol"), and Karatzas et al., (*J. Applied Microbiology*, 89, 296-301 (2000)) ("Karatzas"). See Office Action at p. 2-3. Claims 3-10, 15-20, 22-36, 47-51 and 63 depend from independent claim 1. Claims 70-77 depend from independent claim 69.

Claim 1 relates to a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Claim 69 relates to a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

Bicchi discloses that rosemary extracts of phenolic diterpenes are antioxidants. See Office Action at p. 3. The Examiner acknowledges however that Bicchi “does not teach nisin, carvacrol, carvone, and claimed combinations.” *Id.* Pol discloses that the combination of nisin and either carvacrol or carvone results in synergy. See p. 168 of Pol. However, Pol does not teach or suggest phenolic diterpenes or their combination with nisin. Yang discloses that a number of diterpenes display anti-bacterial activities against MRSA and VRE. See p. 347 of Yang. However, Yang does not mention that such diterpenes should be combined with nisin. Karatzas discloses that carvone may act to reduce the viability of *Listeria monocytogenes*. See p. 296 of Karatzas. Further, it is also disclosed in Karatzas that the combination of carvone and heat treatment results in an effect on the viability of *Listeria monocytogenes*. See p. 299 of Karatzas. However, no mention or suggestion is made in Karatzas of nisin or its combination with phenolic diterpenes.

As such, Bicchi, Yang, Pol and Karatzas do not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Bicchi, Yang, Pol and Karatzas further do not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

The Examiner however contends that “it would have been obvious to combine ingredients with antibacterial activities together.” See Office Action at p. 6. Applicants respectfully traverse this contention. Applicants have surprisingly found in the present invention that the specific combination of i) an antimicrobial material, such as nisin, and ii) phenolic diterpenes in an amount of greater than 1wt. % based on the composition, results in a synergistic

effect on the viability of *Listeria monocytogenes* and *Bacillus cereus* compared to the antimicrobial properties of the two components alone. As previously explained, this synergistic effect is supported by the data presented throughout the specification. For example, Table 5 (page 42 of the specification) shows a summary of results demonstrating the nisin/ phenolic diterpene synergy against *Listeria* and *Bacillus* in pasteurized chicken soup.

The Examiner however, contends that "Table 5 shows minimal inhibitory concentration for nisin, rosmarinic acid, and phenolic diterpenes" and further states that the result in Table 5 "is not commensurate in scope with claim ingredients and amounts." See Office Action at p. 6. Applicants respectfully traverse this contention.

As shown in Table 5 on p. 42 of the specification, the combination of nisin and phenolic diterpenes as claimed does not result in a mere additive effect or "minimal inhibitory concentration for nisin, rosmarinic acid, and phenolic diterpenes." For example, Table 5 demonstrates that *Listeria* took 6 days for growth to reach 10^6 CFU/g in the presence of NISAPLIN® containing 100 IU/g nisin. Additionally, *Listeria* took 5 days for growth to reach 10^6 CFU/g in the presence of RE28 which contains 21 ppm phenolic diterpene content. However, with the combination of Nisin and Rosemary blend A, which contains 100 IU/g nisin **and** 8.4 ppm phenolic diterpene content, *Listeria* took 15 days for growth to reach 10^6 CFU/g. Based on these examples alone, the combination of nisin and phenolic diterpene demonstrates a synergistic effect on the viability of *Listeria monocytogenes* compared to the antimicrobial properties of the two components alone.

Accordingly, since claims 3-10, 15-20, 22-36, 47-51 and 63 depend from independent claim 1 and claims 70-77 depend from independent claim 69, those claims are patentable over Bicchi, Pol, Karatzas and Yang for at least the reasons described above. Applicants respectfully request reconsideration and withdrawal of this rejection.

Bicchi, Yang, Pol, Karatzas and Bard

The Examiner has rejected claims 1, 3-10, 15-36, 39-40, 50-51, 63 and 69-77 under 35 U.S.C. § 103(a) as being unpatentable over Bicchi, Yang, Pol, Karatzas and further in view of U.S. Patent No. 3,679,434 to Bard et al. ("Bard"). See Office Action at p. 6. Claims 3-10, 15-

20, 22-36, 47-51 and 63 depend from independent claim 1. Claims 70-77 depend from independent claim 69.

As explained above, Bicchi, Yang, Pol and Karatzas do not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Bicchi, Yang, Pol and Karatzas do not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

Bard does not remedy the deficiencies of the above-mentioned references. Bard "relates, generally, to innovations and improvements in preparing bodies, e.g. roasts, of whole cooked fresh meat of predetermined uniform size, shape and weight suitable for slicing, characterized by their resistance to the rancidity which normally develops in such bodies on cooling after cooking." See col. 1, lines 33-38 of Bard. In particular, Bard describes "the novel step of injecting such primal cuts or chunks with a source of polyphosphate ions with the result that in the cooked bodies or roasts the polyphosphate ions are distributed substantially uniformly throughout the meat bodies and serve to prevent the cooked meat from becoming rancid on cooling." See col. 1, lines 50-56 of Bard. Bard does not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Bard does not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

Accordingly, claims 1, 69 and claims that depend therefrom, are patentable over the combination of Bicchi, Yang, Pol, Karatzas and Bard for at least the reasons described above. Applicants respectfully request reconsideration and withdrawal of this rejection.

Bicchi, Yang, Pol, Karatzas, Bard and Todd

The Examiner has rejected claims 1, 3-10, 15-36, 39-40, 50-51, 63 and 69-77 under 35 U.S.C. § 103(a) as being unpatentable over Bicchi, Yang, Pol, Karatzas, Bard and further in view of U.S. Patent No. 5,084,923 to Todd Jr. ("Todd"). See Office Action at p. 9-10. Claims 3-10, 15-20, 22-36, 47-51 and 63 depend from independent claim 1. Claims 70-77 depend from independent claim 69.

As explained above, Bicchi, Yang, Pol, Karatzas and Bard do not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Bicchi, Yang, Pol, Karatzas and Bard do not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

Todd does not remedy the deficiencies of the above-mentioned references. Todd teaches anti-oxidant compositions which includes activated ascorbic acid as an antioxidant. See Abstract of Todd. Todd does not describe or mention antimicrobial compositions. Todd does not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Todd does not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

Accordingly, claims 1, 69 and claims that depend therefrom, are patentable over the combination of Bicchi, Yang, Pol, Karatzas, Bard and Todd for at least the reasons described above. Applicants respectfully request reconsideration and withdrawal of this rejection.

Bicchi, Yang, Pol, Karatzas, Bard, Todd and King

The Examiner has rejected claims 1, 3-10, 15-36, 39-40, 50-51, 63 and 69-77 under 35 U.S.C. § 103(a) as being unpatentable over Bicchi, Yang, Pol, Karatzas, Bard, Todd and further in view of U.S. Patent No. 6,451,365 to King et al. ("King"). See Office Action at p. 11. Claims

3-10, 15-20, 22-36, 47-51 and 63 depend from independent claim 1. Claims 70-77 depend from independent claim 69.

As explained above, Bicchi, Yang, Pol, Karatzas, Bard and Todd do not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Bicchi, Yang, Pol, Karatzas, Bard and Todd do not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

King does not remedy the deficiencies of the above-mentioned references. King describes providing antimicrobial compositions that include nisin and hops acid extracts. See Abstract of King. As explained in the Response to Office Action filed on August 28, 2008, hops acids are chemically different from rosemary extracts and thus their method of action is also different. King does not teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a) and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. King does not teach or suggest a foodstuff having a phenolic diterpene content of greater than, or about, 0.00084 % w/w and a nisin content of greater than, or about, 25 IU/ml or 25 IU/g.

Accordingly, claims 1, 69 and claims that depend therefrom, are patentable over the combination of Bicchi, Yang, Pol, Karatzas, Bard, Todd and King for at least the reasons described above. Applicants respectfully request reconsideration and withdrawal of this rejection.

Patentability of New Claim 78

New claim 78 depends from independent claim 1. As described above, none of the above-cited references teach or suggest a composition including (a) an antimicrobial material, and (b) an extract obtained from or obtainable from a plant of the *Labiatae* family, wherein (a)

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and (b) are different wherein the composition contains phenolic diterpenes in an amount of greater than 1.0 wt. %, based on the composition, and wherein the antimicrobial material includes nisin. Accordingly, new claim 78 is patentable. Applicants respectfully request the allowability of new claim 78.

CONCLUSION

For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the pending rejections. Applicants believe that the claims now pending are in condition for allowance. A petition for an extension of time is attached. Should any further fees be required by the present Amendment, the Commissioner is hereby authorized to charge Deposit Account **19-4293**.

Respectfully submitted,

Date: 1-14-10
Customer Number: 27890
STEPTOE & JOHNSON LLP
1330 Connecticut Ave., NW
Washington, DC 20036
Tel: 202-429-3000
Fax: 202-429-3902


Harold H. Fox
Reg. No. 41,498